United States Department of the Interior
Bureau of Land Management
Lower Potomac Field Station
LLES092000

# Environmental Assessment

NEPA #: DOI-BLM-ES-0920-2012-0001-EA

# Meadowood Barn EA

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**Date:** May 2012

**Type of Action:** Environmental Assessment

**Location:** Meadowood Special Recreation Management Area
10406 Gunston Road
Lorton, Virginia 22079

**Project Acreage:** 2.26 acres

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# 1.0. INTRODUCTION

The Meadowood barn structure is nearing the end of its useful design life and needs to be updated to be in compliance with international and state structural, plumbing, and electrical codes, the Americans with Disabilities Act (ADA), and current standards for public ingress. The roof, windows, siding and support beams are in need of replacement or repair to protect the safety of the occupants. The current restroom needs major renovation and expansion to meet current ADA standards. The existing facility has no septic system for managing horse manure. The indoor air quality is poor due to high levels of dust, resulting in an unacceptable frequency of communicable diseases among boarding horses.

## 1.1 PURPOSE OF AND NEED FOR THE PROPOSED ACTION

The purpose of the Proposed Action is to provide recreational experiences at the Meadowood barn for the public that adhere to current safety standards and to current regulations concerning accessibility for the disabled.

The action is needed because the existing Meadowood barn structure is near the end of its useful design life and is out of compliance with international and state structural, plumbing, and electrical codes, the ADA, and current standards for public ingress.

## 1.2 CONFORMANCE WITH BLM LAND USE PLAN(S)

The land use plan (Meadowood Farm PA/EA) for the Meadowood SRMA was approved by the State Director on March 25, 2003. This plan contains the broad environmental analysis of activities approved for the Meadowood SRMA to meet planning goals and objectives.

An Integrated Activity Management Plan/Environmental Assessment (IAMP/EA) was completed in June 2004 that identified allowable uses that include:

- Public equestrian use, such as horseback riding trails, trailer parking and related facilities for public use.
- Facilities and pastures for Federal and other public service or non-profit organizations' horses.
- Facilities which support or provide for public equestrian use, which could include horseback riding lessons, private horse boarding, public use facilities, and riding and training clinics.
- Accessible facilities for individuals who are mentally or physically disabled.

## 1.3 RELATIONSHIPS TO STATUTES, REGULATIONS AND OTHER PLANS

The United States Department of Interior (DOI) Bureau of Land Management (BLM) Lower Potomac Field Station is committed to making its programs and facilities accessible to disabled visitors. The BLM is required to comply with two Federal laws in making its facilities and programs accessible to all:

- **Architectural Barriers Act (ABA) of 1968 (Public Law 90-480)**
  This Act requires that all buildings and facilities constructed in whole or in part by Federal funds must be accessible to, and usable by, physically disabled persons. This includes any construction, renovation, restoration, remodeling, or site development completed by the agencies.
- **Section 504 of the Rehabilitation Act of 1973 (Public Law 93-112, as amended)**
  Section 504 states that all Federal programs, activities, and services must be accessible to disabled visitors, including those with physical, hearing, visual, and learning impairments (federally-assisted programs must also comply with this section). The Department of the Interior regulations for implementation of this law were issued in 1982.

The following laws, policies, and regulations guide management on the Meadowood SRMA.

- **Federal Land Policy and Management Act (FLPMA) of 1976 (Public Law 94-579)**
  The FLPMA provides the BLM legal authority to establish public land policy, guidelines as amended for administering such policy and provides for the management, protection, development, and enhancement of public lands.
- **National Historical Preservation Act (NHPA) of 1966 (Public Law 89-665)**
  The NHPA requires all Federal agencies to administer federally owned, administered, or controlled prehistoric and historic resources in a spirit of stewardship for the inspiration and benefit of present and future generations. The regulations, 36 CFR 800 Section 106, stipulate that prior to the expenditure of any Federal funds on any project, the agency must take into account the effect of the undertaking on any historic properties.
- **Chesapeake Bay Preservation Act and Chesapeake Bay Preservation Ordinance**
  These two items establish Chesapeake Bay Resource Protection Areas, in which development is restricted to protect water quality in the Chesapeake Bay and associated watersheds.
- **Archaeological Resources Protection Act (ARPA) of 1979 (Public Law 96-95, as amended)**
  The ARPA provides protection for archaeological resources on public lands by prohibiting the "excavation, removal, damage or defacing of any archaeological resource located on public lands or Indian lands," and set up criminal penalties for these acts. It also encourages increased cooperation and exchange of information between governmental authorities, the professional archaeological community, and private individuals having archaeological resources and data that were obtained before October 31, 1979.

In addition to these specific laws, there will be compliance with all other applicable Federal laws, regulations, executive orders, and policies.

## 1.4 SCOPING AND ISSUES

The BLM hosted public meetings on November 16, 2010 and June 28, 2011, in Lorton, Virginia, to obtain comments and address concerns from interested stakeholders.

Comments received during and following the meetings dealt with the following issues:

- Equestrian facilities should remain at the Meadowood SRMA and be accessible to all.
- The therapeutic riding program, Simple Changes, should continue to have access to the barn, stables, arenas, and pastures.
- The facility needs to be safe for public use.
- Public use of the equestrian facilities should be increased by public riding lessons and use of the indoor riding arena.
- The number of private horse boarders and total number of horses should be increased.
- The horse board fee established in 2008 did not generate sufficient funds to address major repairs and does not currently cover the cost to the BLM for providing private horse boarding services through a contractor and utilities.

# 2.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

## 2.1 PROPOSED ACTION: BARN STRUCTURE RENOVATION USING EXISTING FOOTPRINT

The Proposed Action is to renovate the Meadowood barn structure within the existing footprint (see Appendix A). The renovated barn structure would be no larger than the existing one. To the extent possible, the renovation would use the existing framing and structural components. The parking area may be renovated in the process.

The existing barn structure (see Appendix B), erected in 1976, is 104 feet wide and 248 feet long. It consists of an open wood frame pole barn, covered in light gage metal siding (4 foot wide) with opaque, translucent, plastic skylights. It consists of 46 stalls, a 190-foot by 60-foot indoor arena, manager's office, storage rooms, bathroom, mechanical room, two horse wash stalls, and a former hay storage area which functions as a smaller indoor setup/lesson area. The septic tank within the project area is currently pumped out on a regular basis as the inflow overwhelms the system. Several elements of this barn structure do not meet requirements of the ADA.

During the time of the renovation, the existing facility would be closed. Day use of the outdoor areas, outside of the project area (Figure 1), would not change.

The entire project would take place inside the project area. Beyond the general design upgrade to accommodate public use, other noteworthy changes in the design would be as follows.

- **Wastewater Treatment and Reuse** – Engineers designing this process would use best management practices. A potential solution might be to direct wastewater from the facility and pump it into a constructed wetland in the pasture to the north of the facility, where it would percolate through soil and be treated by soil microbes, rendering it clean enough for repeated, non-potable use in the facility.
- **Storm Water Management** – Engineers designing mitigation for this activity would use best management practices. A potential solution would be to divert water falling on the roof of the barn into a cistern, where it would be treated and stored for non-potable use. In order to ensure adequate water-collecting capacity during rainy periods, the cistern could be drained at a rate that would not cause soil erosion or pumped into the constructed wetland.
- **Waste Management** – Horse manure would continue to be hauled offsite to a composting facility until an alternative solution using best management practices can be constructed into the overall management process.

## 2.2 ALTERNATIVE B: IMMEDIATE CLOSURE AND DEMOLITION OF MEADOWOOD BARN STRUCTURE

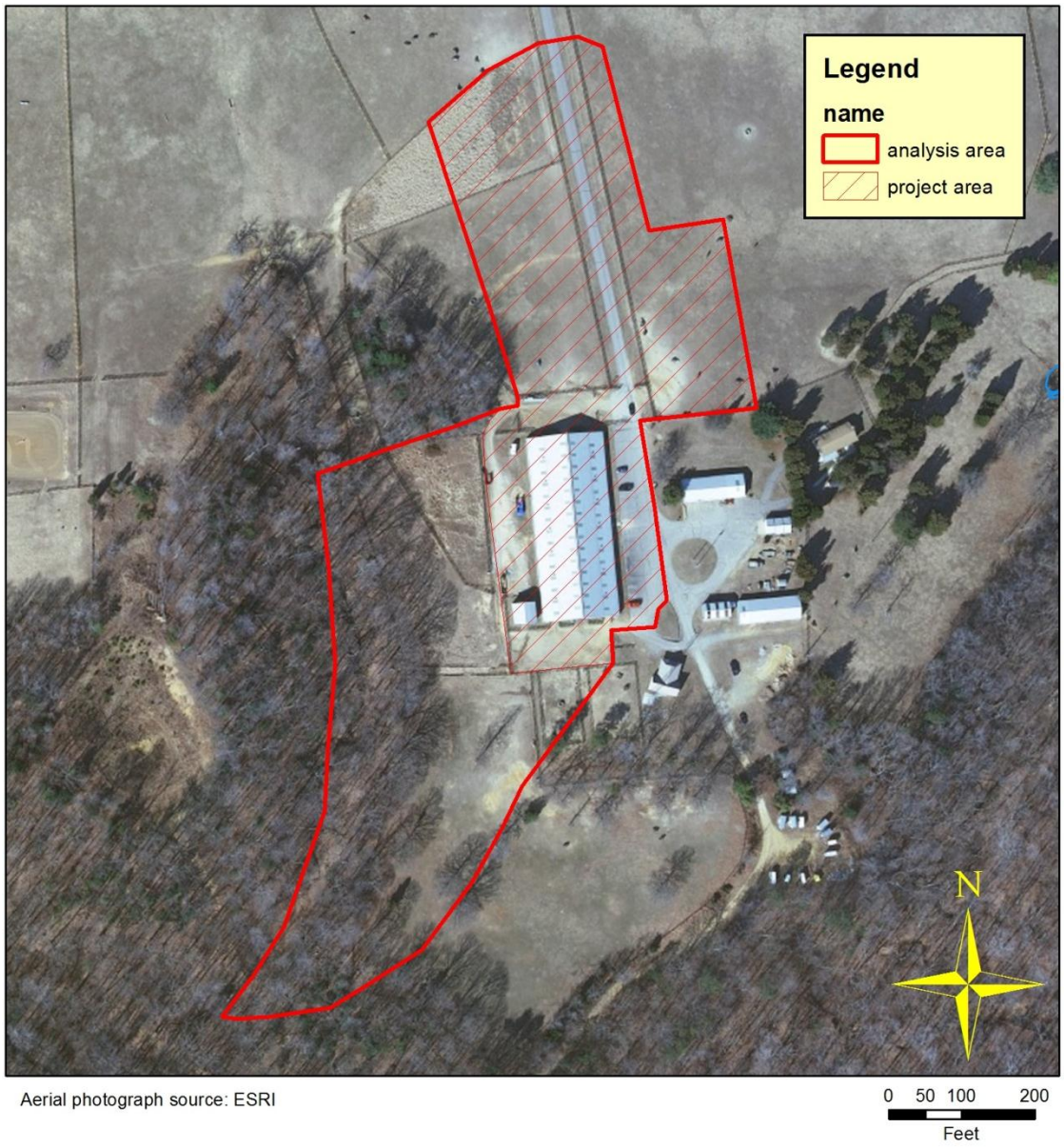
Alternative B would mean that the Meadowood barn structure would close immediately upon the approval of this EA, and the barn would subsequently be demolished and not re-built. Current uses of the outdoor areas, outside of the project area, would not change.

## 2.3 NO-ACTION ALTERNATIVE

The no action alternative would mean not performing any maintenance on the Meadowood barn structure, not updating the stormwater management of the area, and not increasing the public use of the Meadowood barn structure. The Meadowood barn structure would not be upgraded to fully comply with the current Fairfax County, Virginia, and Federal public use safety standards and accessibility regulations. The barn

structure would eventually be closed to public access and activities that currently occur there would cease. In this event, use of the outdoor arena and pastures could continue.

**Figure 1. Project Area and Analysis Area for most resources.**




## 2.4 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER ANALYSIS

In addition to the alternatives above, an alternative in which the Meadowood barn structure would be demolished and an entirely new barn structure built on the existing footprint was eliminated from further analysis as this alternative is considered to be cost-prohibitive.

# 3.0 AFFECTED ENVIRONMENT

## 3.1 PROJECT AREA AND LOCATION

The **project area** (Figure 1) is part of the Meadowood Special Recreation Management Area, which is located in Fairfax County, Virginia, approximately 2.5 miles southeast of downtown Lorton, Virginia and approximately 17.5 miles southwest of downtown Washington D.C., east of Interstate #95 on the Mason Neck Peninsula. The project area is in the Kane Creek watershed and drains east and west into two on-site streams that run south and converge into Thompson Creek, flowing eventually to Belmont Bay, the Potomac River, and Chesapeake Bay. The project area includes the existing Meadowood barn structure, hay storage shed, parking lot, and adjacent pastures, a total area of five acres.

The **analysis area** (Figure 1) for most of the resources analyzed includes all of the project area plus the slopes to the south and west, terminating at the creek. This analysis area is used since the primary resource that drives most of the environmental impacts is the soil on the steep slope. The exception to this rule is recreation, for which Fairfax County was selected, since most of the recreational use of the equestrian facility is most likely by people who live within Fairfax County.

## 3.2 AFFECTED ELEMENTS OF HUMAN ENVIRONMENT

There are 20 elements of the human environment (Table 3-1) that were considered in evaluating the impacts associated with the three alternatives for the equestrian facilities at the Meadowood SRMA.

**Table 3-1 - Affected Human Environment**

| Element | Present | Not Present |
|---|---|---|
| Air Quality | **X** | |
| Climate Change | | **X** |
| Cultural Resources | | **X** |
| Farmlands (Prime or Unique) | | **X** |
| Fish and Wildlife | **X** | |
| Floodplains | | **X** |
| Geology/Mineral Resources/Energy | | **X** |
| Hazardous Wastes | | **X** |
| Health and Human Safety | **X** | |
| Invasive Species | **X** | |
| Recreation | **X** | |
| Socioeconomics and Environmental Justice | **X** | |
| Soils | **X** | |

| | | |
|---|---|---|
| Threatened, Endangered or Candidate Animal Species/Migratory Birds | **X** | |
| Vegetation | **X** | |
| Visual Resources | | **X** |
| Water Resources and Quality (Surface and Ground) | **X** | |
| Wetlands/Riparian Zones | **X** | |
| Wild and Scenic Rivers | | **X** |
| Wilderness | | **X** |

### 3.2.1 Air Quality

Fairfax County, Virginia, is within an eight-hour non-attainment area for both ozone and small particulate matter ($PM_{2.5}$). Air in the Meadowood barn structure tends to become dusty during dry conditions when horses are moving about in the indoor arena. The facility has and frequently uses a sprinkler system for the purpose of reducing airborne dust.

### 3.2.2 Climate Change

Neither the Proposed Action nor any of the alternatives would have a demonstrable effect on emissions of greenhouse gases. It is possible that boarders may have to drive longer or shorter distances to reach their horses under one alternative, but this information would have to be obtained for each boarder. Likewise, this information would likely change over time, as the roster of boarders changes. No further analysis of climate change is warranted.

### 3.2.3 Cultural Resources

The Meadowood SRMA has been surveyed by archaeologists on numerous occasions and has a moderate to high probability of containing historic and prehistoric cultural resources including 18$^{th}$ and 19$^{th}$ century home sites and farmsteads. However, there are no known or suspected traditional cultural properties or sites of Native American religious concerns within the project area.

### 3.2.4 Farmlands (Prime or Unique)

The U.S. Department of Agriculture (USDA) defines prime farmland soils as those soils best suited to producing food, feed, forage, fiber, and oilseed crops. Unique farmland is land other than prime farmland that is used for the production of specific high value food and fiber crops; such crops include citrus, tree nuts, olives, cranberries, fruit, and vegetables. There are no prime or unique farmlands in the project area.

### 3.2.5 Fish and Wildlife

The analysis area contains a mature beech forest with a portion of a first-order tributary that drains to Belmont Bay. The forest provides habitat for a wide variety of wildlife, such as birds, mammals and amphibians, and the stream contains small fish, aquatic macroinvertebrates, and reptiles and amphibians. The Meadowood barn structure likely provides habitat for pigeons, mice, and other small animals that are well-adapted to human environments. Neither the Proposed Action nor the alternatives would modify the forest or creek except through erosion. For this reason, fish and wildlife impacts will warrant no further explicit analysis.

### 3.2.6 Floodplains

There is an unnamed tributary that does not have a floodplain that is distinct from the creekbed, since the ravine is very steep. Neither the Proposed Action nor the alternatives would modify the floodplain, and no further analysis is warranted.

### 3.2.7 Geology/Mineral Resources/Energy

The surrounding area is not used for energy production except for the possible, scattered occurrence of wind turbines or solar collectors. The Proposed Action may incorporate the use of solar collectors, which would likely generate enough power to operate a wastewater pumping system. No further analysis is warranted.

### 3.2.8 Hazardous Wastes

The project area does not contain any hazardous wastes. Neither the Proposed Action nor the alternatives would introduce any hazardous wastes to the analysis area, and detailed analysis is not warranted.

### 3.2.9 Health and Human Safety

The Meadowood barn structure poses risks to the health and safety of both horses and people.[1,2] Several of the barn structure systems are failing, creating uncomfortable or even hazardous conditions for people and animals. The Fairfax County Department of Public Works and Environmental Services has stated that the indoor air quality is poor in the existing barn structure. Half of the stalls lack windows, and many of the windows are difficult to open or do not open at all. The dust suppression is in poor condition and requires frequent maintenance. The automatic horse watering system has been turned off due to its poor condition.

The barn structure layout also poses risks to people and animals. Tack storage is located across an aisle from each stall, which poses a hazard as people attempt to access tack while horses are being walked through the aisles. Due to the narrow design of the existing indoor arena, several horses have fallen while turning corners at a canter, putting their riders in danger of injury.

The barn structure has structural deficiencies arising from improper construction and decades of wear. For example, some of the barn structure's trusses are bowing, while others are severely rotten, indicating that their load has exceeded their designed capacity. Some of the barn structure's beams are notched at their points of highest load. Some of the roof purlins are oriented in the wrong direction, causing them to be weaker than they were designed to be. Portions of the roof have come unattached from the supporting structure. Two-by-fours have been used to extend beams that were not long enough for their intended use. Many leaks in the building are allowing water to cause wood rotting and to penetrate electrical fixtures, making them unsafe to use.

### 3.2.10 Invasive Species

The Meadowood SRMA contains some of the many invasive plant species or weeds found throughout the Mid-Atlantic Region. Some of the problem species identified at the Meadowood SRMA and the habitats in which they occur in include Japanese stiltgrass (Microstegium vimineum), Chinese silver grass (Miscanthus sinensis), common reed (Phragmites australis), Chinese lespedeza (Lespedeza cuneata), Japanese barberry (Berberis thunbergii), multiflora rose (Rosa multiflora), tree-of-heaven (Ailanthus altissima), and princess tree (Paulownia tomentosa). Most of these thrive in disturbed conditions, such as

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[1] POZ Environmental, LLC, "Arena/Horse Barn Structural Evaluation," April 26, 2011, available at http://www.blm.gov/es/st/en/prog/recreation.html

[2] Fairfax County Department of Public Works and Environmental Services, "Barn/Arena Assessment," December 2010, available at http://www.blm.gov/es/st/en/prog/recreation.html

soil that has been trodden by horses, within construction areas, and are areas of soil erosion or recent deposition. Seeds are transported by vehicles that have been driven in places where invasive species are present, and hay used for forage may contain seeds of invasive plants.

### 3.2.11 Recreation

The main purpose of the Meadowood SRMA is to provide and maintain an area for various forms of recreation and environmental education/interpretation while managing and protecting its natural and cultural resources. The existing facility provides equestrian recreational opportunities in the form of boarding and an indoor arena. Private boarding is available for $700 per month per horse, and the existing facility has 46 stalls. A total of 29 stalls are occupied and approximately 20 of those are occupied by private boarders. The indoor arena is available for day use by non-boarders but, since that availability is not currently advertised, almost all of the arena use is by boarders. One other public, indoor arena is available in Fairfax County at Frying Pan Park, roughly a 45-minute drive from Meadowood.

### 3.2.12 Socioeconomics and Environmental Justice

*Socioeconomics*

The horse board fee paid by private boarders is $700 per month per horse. Currently, there are 20 private horses boarded at Meadowood. The fee does not cover the total cost to the BLM to provide the horse board service through a contractor. In addition, the fee does not cover the additional cost of utilities, the BLM staff labor, and major repairs for the facility. The BLM is unable to raise the horse board fee at the present time.

The cost to the BLM to provide horse boarding increases yearly due to the services contract option year increases. During the upcoming option year 2 period of the current board services contract, April 2012 through March 2013, the amount of horse board paid by owners will range from $126,000 for 15 horses to $168,000 for 20 horses.

The cost to the BLM to provide boarding services during the option year 2 period is anticipated to range between $160,020 for 15 boarded horses and $213,360 for 20 boarded horses. In addition, the BLM also pays for utilities for the barn which are approximately $8,500 per year.

The therapeutic and public riding lesson programs conducted under special recreation permits (SRPs) currently provide revenue to the BLM as, to a minimal extent, do instructors who give riding lessons to some horse boarders. The largest portion of revenue from SRPs is generated by the therapeutic riding program. Revenue from activities conducted at the facility under SRPs ranged from approximately $10,000 to $14,000 in Fiscal Years 2010 and 2011, respectively.

*Environmental Justice*

The requirements for an environmental justice review were established by Executive Order 12898 (February 11, 1994). That order declared that each Federal agency is to identify "disproportionately high and adverse human health or environment effects of its programs, policies, and activities on minority populations and low income populations."

According to the 2010 U.S. Census, Mason Neck Peninsula had a population of 2,005 people and Lorton had 18,610 residents. Lorton's population represents approximately 2 percent of the total population in Fairfax County (1,081,726 residents) and was distributed as approximately 39 percent White, 29 percent Black, 17 percent Asian and 15 percent Hispanic. Fairfax County had a population distribution of approximately 60 percent White, 9 percent Black, 17 percent Asian, and 15 percent Hispanic. Median household income in 2010 was $86,557 for Lorton and $102,325 for Fairfax County. Approximately 5.6 percent of the county population was below the poverty line. The top employers were the Fairfax County

school system, the U.S. Government and Fairfax County Government. Ninety two percent of the population reported graduating high school.

### 3.2.13 Soils

The analysis area contains various silt loams and sandy loams. The portions of the analysis area to the south and west of the existing barn are sloped greater than ten degrees toward the ravine. The analysis area also contains marine clays, which are soils that have a high tendency to swell considerably upon wetting and shrink upon drying. These soils pose problems for construction of buildings, especially near steep slopes.

### 3.2.14 Threatened, Endangered or Candidate Animal Species/Migratory Birds

Table 3.2 below lists special-status species that are known to occur or have potential to occur in Fairfax County in habitat types that are present within the analysis area.

**Table 3.2. Endangered Species Potentially Present in Analysis Area.**

| Common Name | Scientific Name | Group | Status | Habitat |
|---|---|---|---|---|
| Dwarf wedgemussel | *Alasmidonta heterodon* | Clam | E | Creeks and rivers |
| American eel | *Anguilla rostrata* | Fish | CAN | Creeks and rivers |
| Small whorled pogonia | *Isotria medeoloides* | Plant | T, Thr | Deciduous forests |
| Bald eagle | *Haliaeetus leucocephalus* | Bird | SEN, Thr | Coastal areas, near waterbodies |
| A brook floater | *Alasmidonta varicosa* | Mussel | End | Creeks and rivers |
| Wood turtle | *Glyptemys insculpta* | Reptile | Thr | Along permanent streams in deciduous woods and other terrestrial habitats |

Key: *E – federally endangered; T –federally threatened; CAN – Federal candidate; SEN – BLM sensitive species due to recent delisting under the Endangered Species Act; End – state-listed as endangered; Thr – state-listed as threatened*

### 3.2.15 Vegetation

The analysis area includes two acres of upland forest, dominated by American beech (*Fagus grandifolia*), all of which is outside the project area and will not be removed, trampled, treated, or otherwise directly or physically altered by the project's design. The analysis area contains 6 acres of pasture and manicured lawn, which are dominated by non-native, cold-season turf and forage grass species, 2.5 acres of which is inside the project area.

### 3.2.16 Visual Resources

The entire analysis area is in a suburban/rural setting. Buildings are visible from almost anywhere within the analysis area, and traffic on nearby roads is audible. The project will not change the visual characteristics of the wooded portion of the analysis area. The Proposed Action would renovate the old barn structure using best management practices and guidelines for a quality built environment. Neither the Proposed Action nor any of the alternatives will change the basic visual characteristics of the analysis area. No further analysis is warranted.

### 3.2.17 Water Resources/Quality (Drinking, Surface, and Ground)

The Meadowood barn structure uses municipal water, which is provided by the Fairfax County Water Authority, or Fairfax Water, and comes from the Potomac River and Occoquan Reservoir. The entire Lower Potomac Field Station used a monthly average of 139,643 gallons of municipal water during the period between November 2008 and February 2012. Since the non-boarding water uses include two bathrooms and a kitchenette for up to five BLM employees, it is safe to assume that the boarding facility consumes nearly all of the facility's water. The water utility is paid by the BLM.

### 3.2.18 Wetlands/Riparian Zones

The analysis area contains 780 feet of a creek, along with its associated riparian area. The riparian area is very narrow, due to the steep slope of the ravine. Neither the Proposed Action nor the alternatives would modify the riparian area in any way that is not detailed in the **Soils** section. The Proposed Action may result in the creation of up to one-half acre of constructed wetland.

### 3.2.19 Wild and Scenic Rivers

There are no wild and scenic rivers within the analysis area.

### 3.2.20 Wilderness

There are no designated wilderness areas within the analysis area.

# 4.0 ENVIRONMENTAL IMPACTS OF ALTERNATIVES

## 4.1 Air Quality

Neither the Proposed Action nor the alternatives would impact the status of the non-attainment zone for any air quality parameter. The Proposed Action could potentially reduce the indoor air quality issue by using guidelines for a quality built environment and best management practices that might include redesign of the interior and/or implementation of a more efficient method for dust control. The No-Action Alternative would leave the indoor air quality issue unaddressed for the duration of the standing barn structure, at which point the issue would be moot, since the barn structure would be closed. Alternative B would eliminate the indoor air quality issue by closing and removing the barn structure.

## 4.2 Cultural Resources

The only potential sources of disturbance to cultural resources would arise from further ground disturbance, such as boring for new footings, or from erosion of the steep slopes to the south and west of the facility. For this reason, any potential impacts to cultural resources will be analyzed in the Soils section, below.

## 4.3 Fish and Wildlife

The No-Action Alternative would result in continued erosion and mass-wasting of the steep slope, resulting in exposed tree roots, tree mortality, and the loss of up to two acres of upland forest over a period of several years. The impervious surface of the barn structure's roof, the source of a large proportion of the runoff that produces erosion on the slope, would eventually be eliminated by the removal of the barn under the No-Action Alternative, and it would be eliminated immediately under Alternative B. The Proposed Action could reduce this erosion by employing a quality built environment design and diverting a large percentage of the runoff from the building, away from the steep slope, thus preserving the wildlife habitat. The Proposed Action, through run-off mitigation could potentially create a constructed wetland that would add one-half acre of habitat for pollinators, such as butterflies and bees.

## 4.4 Invasive Species

The No-Action Alternative, through its erosional impact on the mesic woodland in the ravine (see Soils, below), would leave that habitat highly susceptible to invasion by non-native plant species that thrive in disturbed areas. Under the No-Action Alternative, the erosion would be reduced after the barn structure's removal, but invasive species would continue to spread from the infested slope until they were actively controlled. Under Alternative B and the Proposed Action, the removal of the major source of erosion would delay or slow down the introduction of invasive species and preserve the native species that currently inhabit the analysis area.

## 4.5 Health and Human Safety

The No-Action Alternative could result in injuries to people and animals if the BLM delayed for an extended period the closing and demolishing of the barn structure. If the barn structure were to remain open, it would continue to pose risks to people and animals arising from the poor indoor air quality, crowded aisles, and other issues discussed in chapter 3 and described in the referenced studies. In the worst-case scenario, a portion of the barn structure may fail, causing a large piece of metal or wood to fall on a person or an animal, potentially resulting in serious injury or death.

Alternative B and the Proposed Action would reduce or eliminate most of the hazards described in Chapter 3 and in the referenced documents. Alternative B would accomplish this by removing the barn structure. Under the Proposed Action, new or refurbished materials, adherence to applicable building codes, and quality built environment design for public use would result in a barn structure that is structurally sound with proper and functioning ventilation, electrical, and plumbing systems.

## 4.6 Recreation

The No-Action Alternative would have no impact on the recreational use of the barn structure until the building would have to be torn down, at which point the boarders would have to find boarding elsewhere. Day use of the trails, outdoor arena and some pasture riding areas would continue to be available. Alternative B would result in an immediate end to boarding and use of the indoor arena, in effect for the foreseeable future. The Proposed Action would require a cessation of boarding during construction. It would have no permanent impact on recreation, since it would preserve public riding lessons, the public therapy program and boarding for the foreseeable future.

## 4.7 Socioeconomics and Environmental Justice

*Socioeconomics*

The No-Action Alternative will have no effect until the current occupants of the Meadowood barn structure are requested to leave due to safety concerns and the continued deterioration of the facility leading ultimately to demolition. At that time, the horses would be removed by their owners to alternate horse boarding facilities in the general area. Horse feed, hay, and bedding would continue to predominantly be purchased outside of Fairfax County. The need for veterinarian and farrier (blacksmith) services would continue at the alternate locations.

The No-Action and Proposed Actions will not increase or decrease the area's living resources. The Proposed Action may economically impact service providers such as the feed and hay dealers, farriers and veterinarians who provide services to resident horses. However, the majority of these services come from outside of Fairfax County and would likely continue in alternate horse boarding locations.

Potential impacts of improved and safer facilities include greater public access and use of facilities by local equestrians and more general public use. Depending on design and future options there could be the opportunity for use and increased revenue from clinics, shows, and a variety of other events and increased

ability to hold Wild Horse and Burro adoptions, training demonstrations, training and related equestrian activities.

*Environmental Justice*
Both minority and low income populations are dispersed throughout the county. Therefore, no minority or low-income populations would suffer disproportionately high and/or adverse effects as a result of any of the alternatives.

## 4.8 Soils

The No-Action Alternative would result in continued erosion and mass-wasting of the steep slope. The impervious surface of the Barn structure's roof, the source of a large proportion of the runoff that produces erosion on the slope, would eventually be eliminated by the removal of the barn under the No-Action Alternative, and it would be eliminated immediately under Alternative B. The Proposed Action would reduce this erosion to very close to natural levels by diverting close to 100 percent of the runoff from the building away from the steep slope.

## 4.9 Threatened, Endangered or Candidate Animal Species/Migratory Birds

The No-Action Alternative, by degrading up to two acres of mesic woodland and inundating the creek with sediment (see Soils, above), could possibly result in loss of breeding habitat (for example, mussel breeding habitat on the creek bottom), loss of foraging habitat (for example, wood turtle foraging areas in the woodland), and mortality to individual species (for example, small whorled pogonia) of the species listed in Chapter 3. Alternative B would reduce erosion by removing the impervious area at the top of the steep slope. The Proposed Action would also reduce erosion to very close to natural levels by diverting nearly 100 percent of the runoff from the barn structure away from the steep slope.

## 4.10 Vegetation

The No-Action Alternative, by allowing the current erosion scenario to continue, would result in exposed tree roots in the ravine, possibly killing the trees and converting the woodland to an open habitat, as described in the Invasive Species section, above. Alternative B and the Proposed Action would not have this effect on the mesic woodland, since they would reduce erosion into the ravine. Alternative B would result in the replacement of the barn structure's footprint with either a cool-season grass mix and pasture species or a mix of native grasses and forbs. The Proposed Action would result in the conversion of one-half acre of pasture to a wet meadow, which would be dominated by native wetland plant species.

## 4.11 Water Resources/Quality (Drinking, Surface, and Ground)

The No-Action Alternative would have no immediate impact on water resources, since the facility would continue to be used as it currently is being used. However, as the barn structure deteriorates over a period of years, it would eventually be torn down, and the use of water for dust control and washing horses would cease. Alternative B would immediately eliminate the use of water for washing horses, watering horses, and operating the dust-control system. The Proposed Action would likely reduce the use of water in multiple ways. First, an updated barn structure design would reduce the need for water for dust control. Second, potentially less impervious area and mitigation of water run-off like a rainwater harvesting system, would greatly reduce the amount of municipal water used by providing most, if not all, of the necessary water. Finally, an updated plumbing system would eliminate leaks that are most likely wasting water in the existing barn structure.

## 4.12 Wetlands/Riparian Zones

The Proposed Action may result in the creation of up to one-half acre of constructed wetland or other mitigation best management practice that could include a wet meadow with saturated soil for several months of the year but no standing water. The No-Action Alternative and Alternative B would have no impact on wetlands. Under the No-Action Alternative, unchanged runoff from the existing barn structure

would continue to erode the steep slope, potentially inundating the creek with sediment over a period of years.

# 5.0 Persons, Groups, and Agencies Consulted

## Consultation and Coordination

**List of Persons, Agencies and Organizations Consulted**

| Name | Purpose & Authorities for Consultation or Coordination | Findings & Conclusions |
|---|---|---|
| Fairfax County Department of Public Works and Environmental Services (DPWES) | Barn/arena structural assessment | Report findings available on Meadowood website: http://www.blm.gov/es/st/en/prog/recreation.html |
| Virginia Department of Conservation and Recreation (VDCR) | Construction jurisdiction for State of Virginia | Provided construction requirements information |
| Virginia Department of Historic Resources (VDHR) | Cultural resources consultation | No cultural resources identified in project/decision areas |
| Virginia Department of Game and Inland Fisheries (VDGIF) | Threatened and Endangered Species | 136 T&E species in Virginia, none in the project/decision areas |
| POZ Environmental | Contractor for Barn/Arena structural engineering assessments | Report findings available on Meadowood website: http://www.blm.gov/es/st/en/prog/recreation.html |
| Bureau of Land Management National Operations Center (NOC) | Stable/Arena Replacement Evaluation | Report findings available on Meadowood website: http://www.blm.gov/es/st/en/prog/recreation.html |

# 6.0 List of Preparers

**BLM Preparers**

| Name | Title |
|---|---|
| Jinx Fox | Natural Resource Specialist, LPFS |
| Michael Reiland | Associated Deputy State Director, Natural Resources, Eastern States Office (ESO) |
| Faye Winters | Wildlife Biologist/Threatened & Endangered Species, Southeastern States Field Office (SSFO) |
| John Sullivan | Archeologist, SSFO |
| Gary Taylor | Planning & Environmental Coordinator, SSFO |
| Kurt Wadzinski | Planning & Environmental Coordinator, Northeastern States Field Office (NSFO) |
| Derek Strohl | Natural Resource Specialist, NSFO |
| Mark Storzer | Manager, NSFO |

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## 8.0 List of Abbreviations

| | |
|---|---|
| BLM | Bureau of Land Management |
| BMP | Best Management Practices |
| DOI | Department of Interior |
| DPWES | Fairfax County Department of Public Works and Environmental Services |
| EA | Environmental Assessment |
| EIS | Environmental Impact Statement |
| FEMA | Federal Emergency Management Agency |
| FNG | FutureNet Group, Inc. |
| IAMP | Integrated Activity Management Plan |
| NAAQS | National Ambient Air Quality Standards |
| NRCS | Natural Resource Conservation Service |
| PCBs | Polychlorinated Biphenyls |
| SESC | Soil Erosion and Sediment Control |
| SRMA | Special Recreation Management Area |
| SWPPP | Storm-water Pollution Prevention Plan |
| USACE | United States Army Corps of Engineers |
| USDA | United States Department of Agriculture |
| USGS | United States Geological Survey |
| VDCR | Virginia Department of Conservation and Recreation |
| VDEQ | Virginia Department of Environmental Quality |
| VDGIF | Virginia Department of Game and Inland Fisheries |
| VDHR | Virginia Department of Historic Resources |
| VPDES | Virginia Pollutant Discharge Elimination System |

# 9.0 Appendices

## 9.1 Appendix A: Figures

FIGURE 1: MEADOWOOD EQUESTRIAN FACILITY

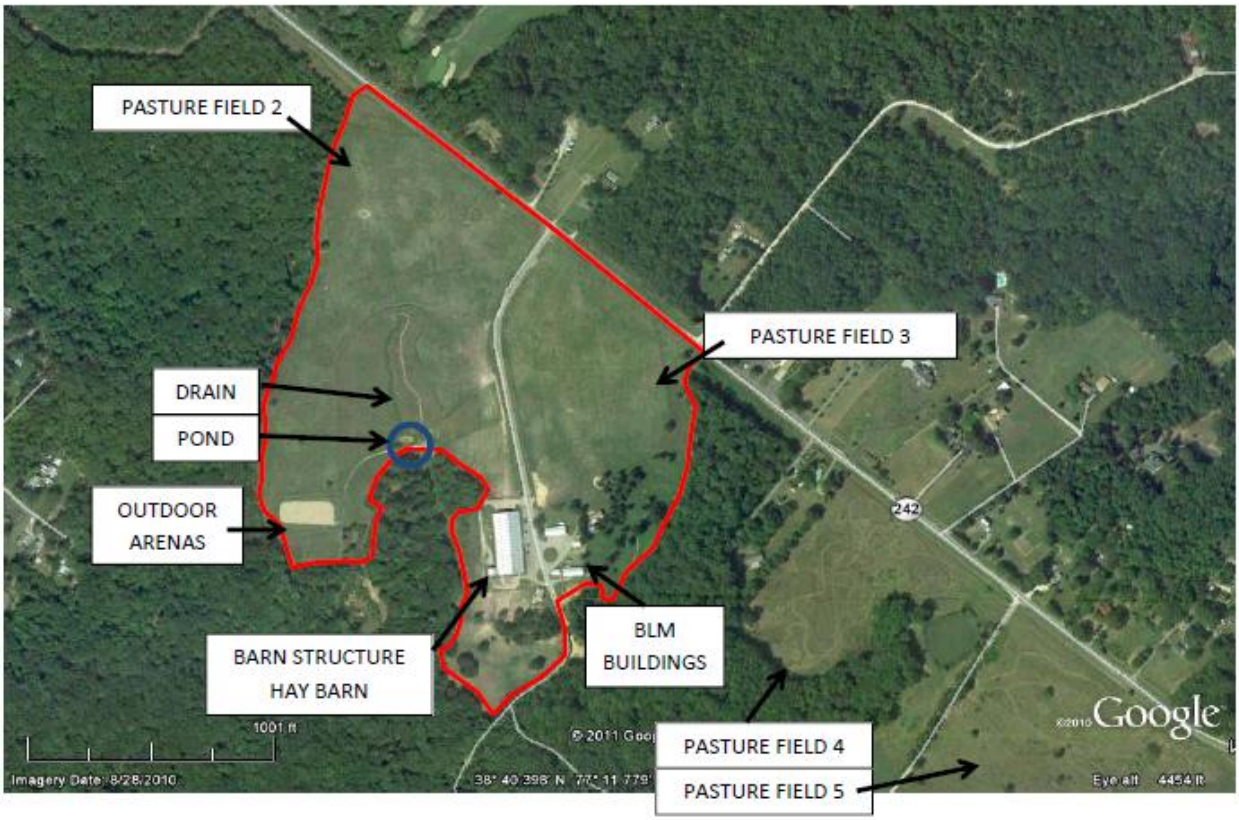


**FIGURE 2: SOUTH PASTURE AND STRUCTURES**

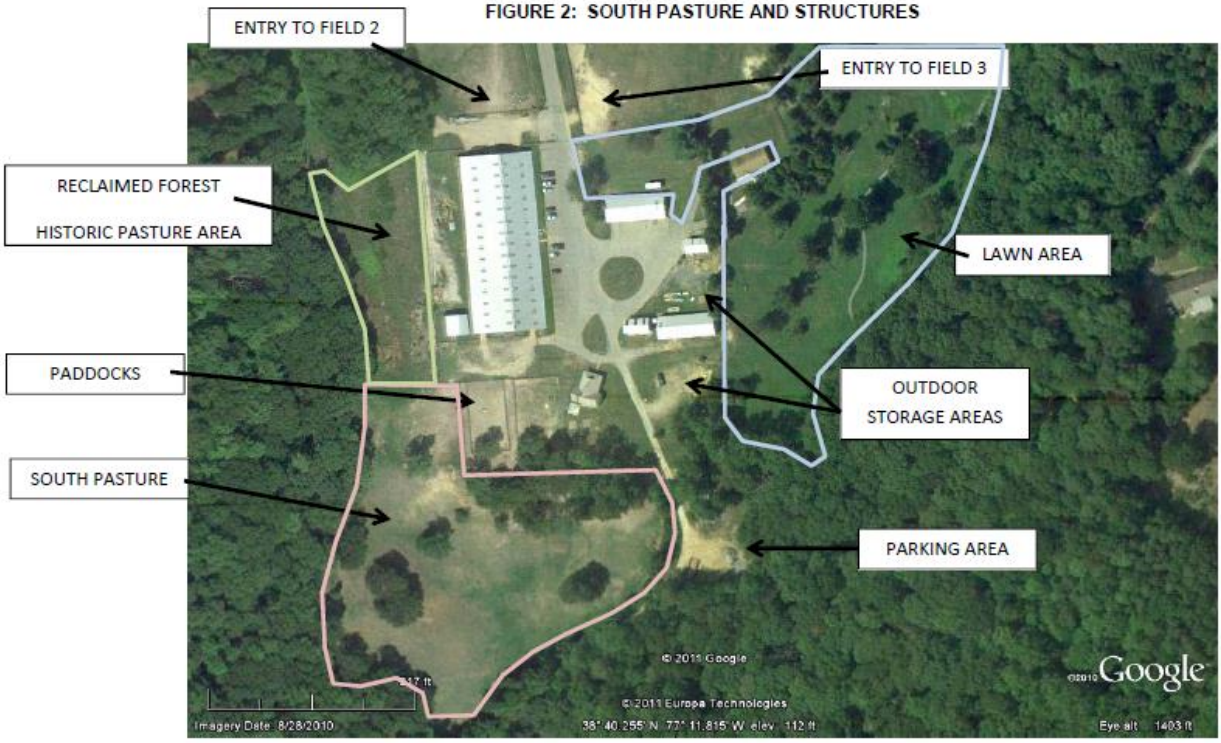


**FIGURE 3: STRUCTURES**

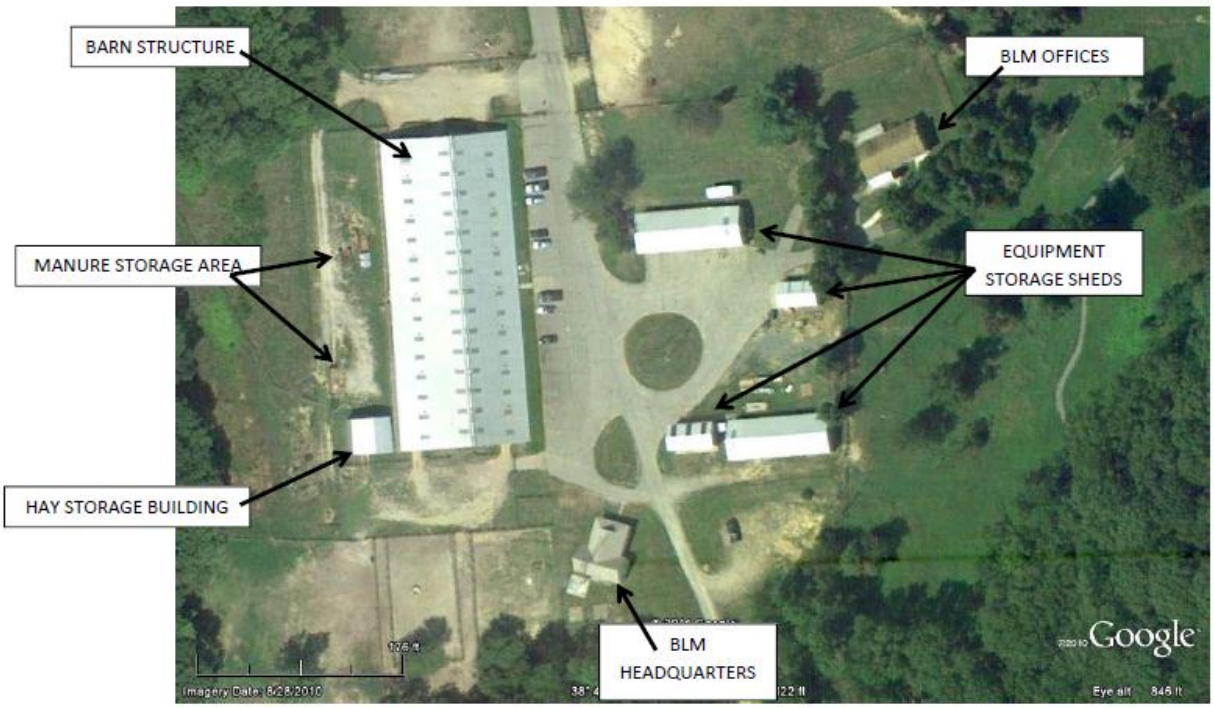


FIGURE 4: TOPOGRAPHIC MAP - MEADOWOOD EQUESTRIAN FACILITY

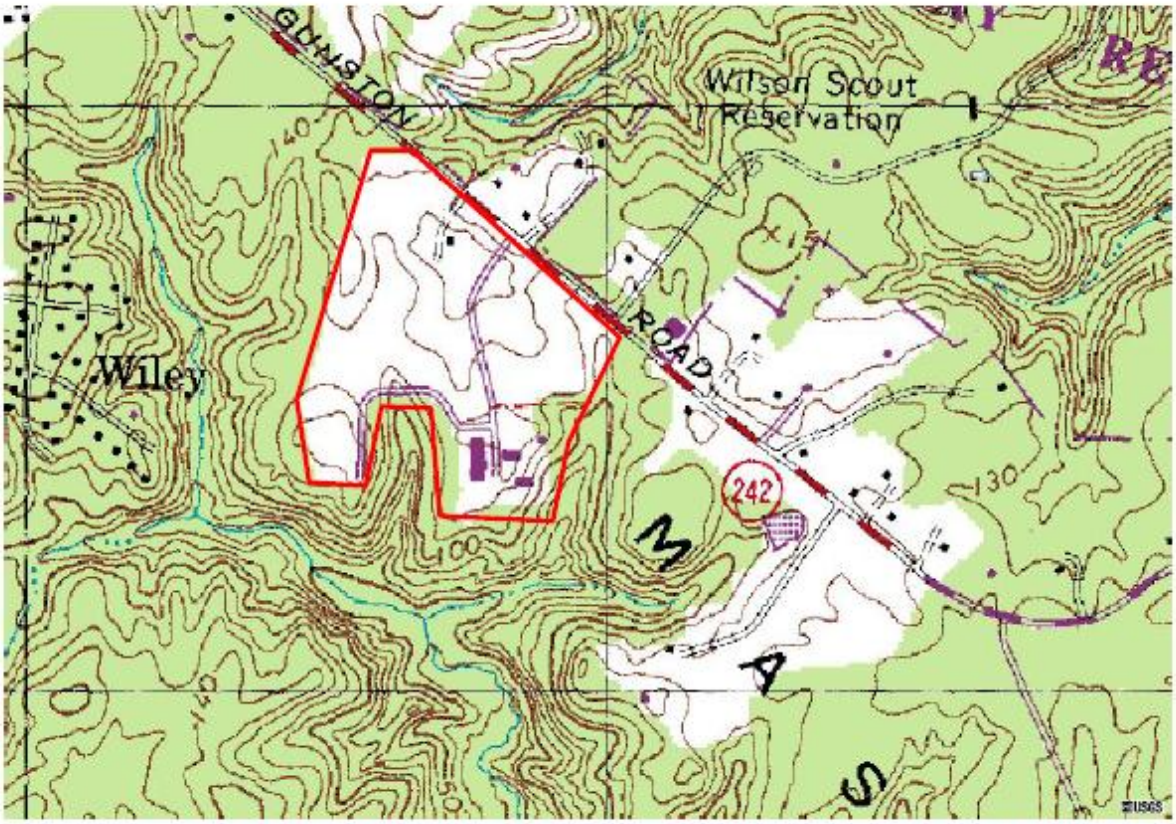


FIGURE 5: STORMWATER MAP - MEADOWOOD EQUESTRIAN FACILITY

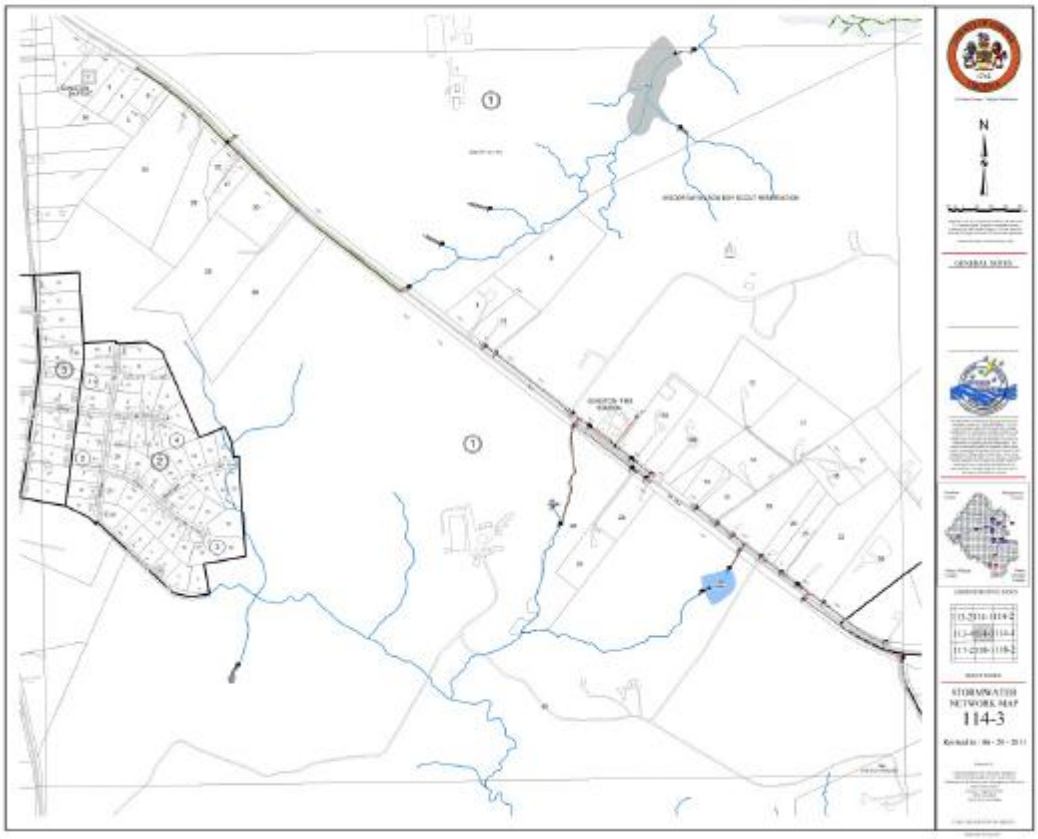


FIGURE 6: SOILS MAP - MEADOWOOD EQUESTRIAN FACILITY

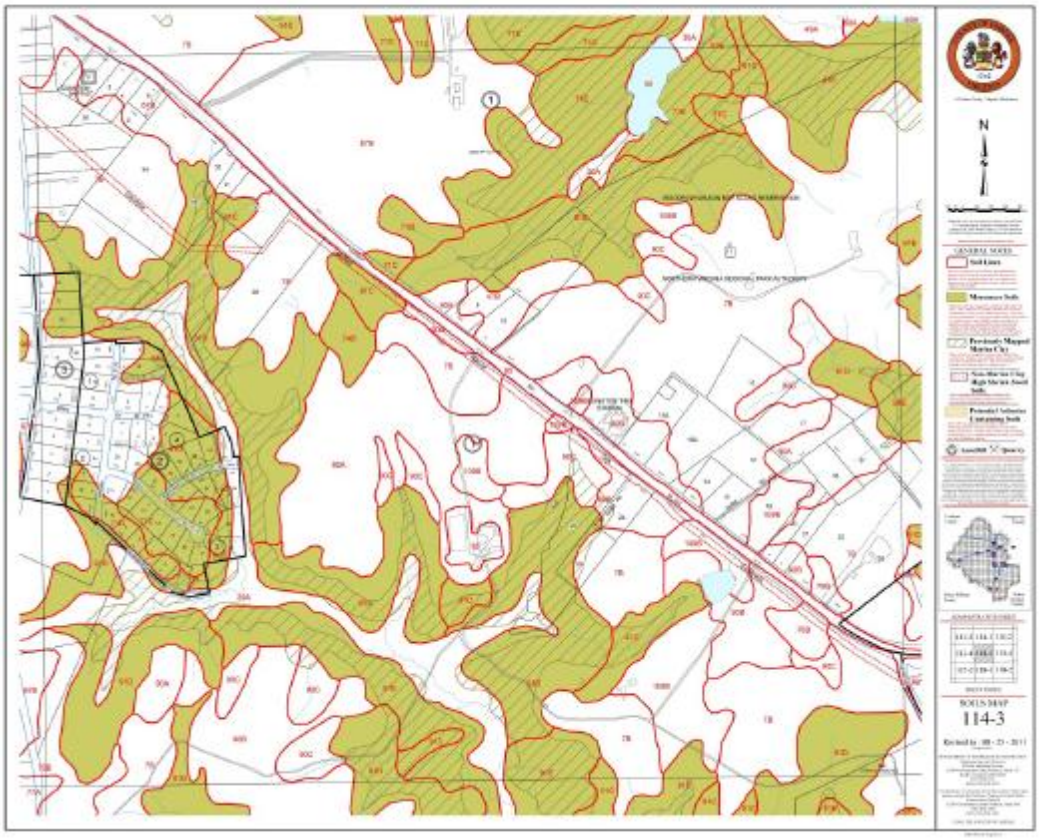
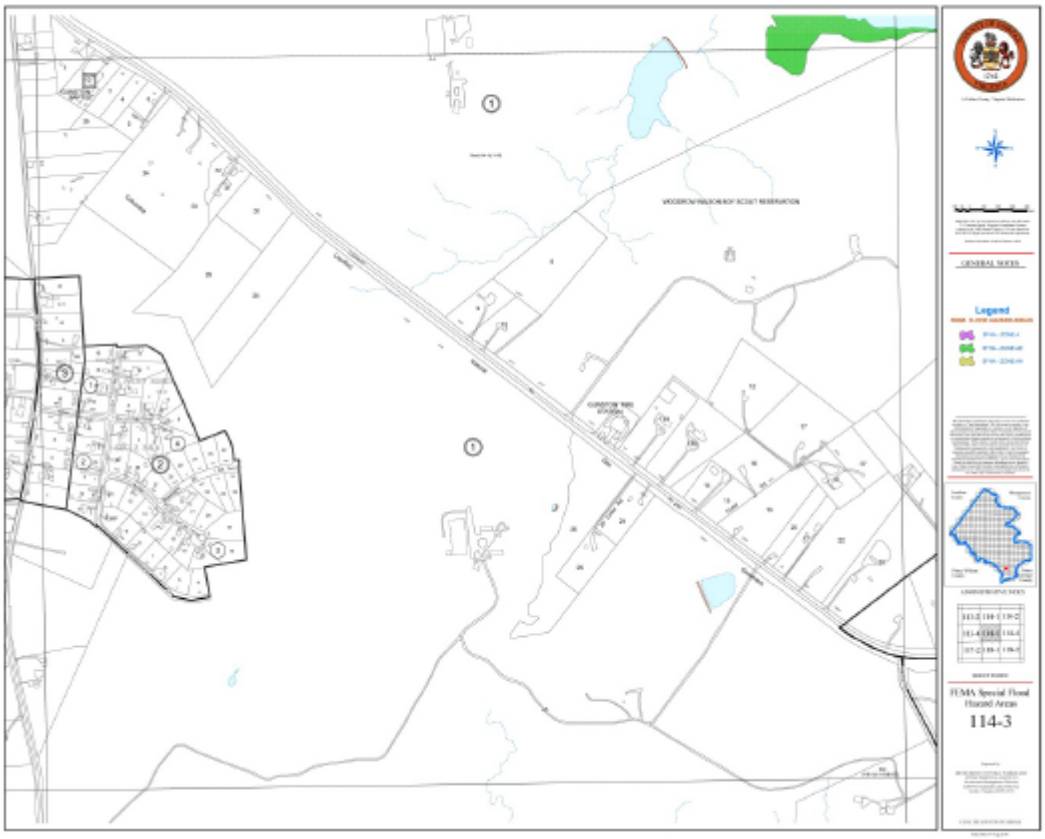


FIGURE 7: FEMA MAP - MEADOWOOD EQUESTRIAN FACILITY



## 9.2 Appendix B: Photographs


Photo 1: Guston Road entrance to Meadowood Special Recreation Management Area.


Photo 2: View of the stables and indoor arena looking west.


Photo 3: Main visitor/employee entrance to the stables and indoor arena.

Photo 4: View of the stables and indoor arena looking north at the south entrances.


Photo 5: View of the south entrance to the stables and indoor arena.

Photo 6: View of the BLM buildings located east of the stables and indoor arena.


Photo 7: View of the circular drive and the access road to the hay storage building and south paddocks and pasture.


Photo 8: View of the hay storage building, located west of the barn


Photo 9: Gravel area located between stables, indoor arena, hay barn and manure handling areas.


Photo 10: View of the manure handling area for CAS (the barn manager).


Photo 11: View of the storage and manure handling area for Simple Changes Therapeutic Riding Lessons.

Photo 12: View of the north entrance to the barn, and access road to the outdoor arenas.


Photo 13: View of the north entrance to the barn, and access road to the outdoor arenas.


Photo 14: View of the north entrance to the barn, and access road to the outdoor arenas.


Photo 15: View of the access road to the outdoor arenas.


Photo 16: View of Field 2, pasture located north and west of the barn.

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|  | |  | |
| Photo 17: View of the new stormwater retention pond for Field 2. The path is protected by drainage tile. | | Photo 18: View of the new stormwater retention pond for Field 2 | |
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| Photo 19: View of the drain from Field 2 into the stormwater retention pond. New trees were planted between the pasture and the drain. | | Photo 20: View of the drain from the Field 2 stormwater retention pond to Thompson Creek. New riprap was installed to prevent soil erosion. | |

Photo 21: Soil erosion caused by horses on the path to the outdoor arenas.


Photo 22: The northern outdoor arena.


Photo 23: The southern outdoor arena


Photo 24: View of Field 2 from the outdoor arena area.

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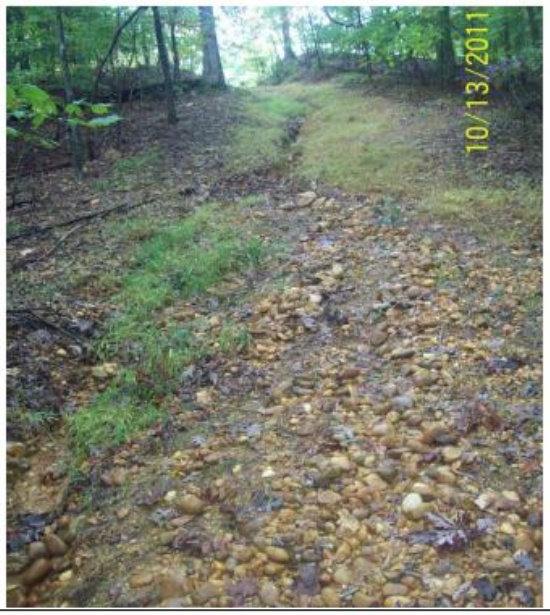
| Photo 25: View of the historic open pit gravel mine located south of the outdoor arenas. | Photo 26: View of the historic open pit gravel mine located south of the outdoor arenas. |
|  |  |
| Photo 27: View of the historic open pit gravel mine located south of the outdoor arenas. | Photo 28: View of the current access road to the historic open pit gravel mine. |

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| Photo – 29: View of erosion in Meadowood SRMA. | | Photo – 30: View of erosion in Meadowood SRMA. |
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| Photo – 31: View of trail at Meadowood SRMA. | | Photo – 32: View of drainage tiles on trail at Meadowood SRMA. |

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| Photo 33: Stormwater and soil erosion damage on trail in Meadowood SRMA. | | Photo 34: Soil erosion and sedimentation deposition. |
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| Photo 35: Day-use equestrian trail head. | | Photo 36: Day use equestrian parking. |

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| Photo 37: Simple Changes Therapeutic Riding ramp for mounting horses. | Photo 38: View of the Setup area (small arena) located on the north end of the barn by the mounting ramp. |
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| Photo 39: View of the east aisle looking south. | Photo 40: View of a 10 foot by 10 foot stall, no window in stall. |

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|   | |   |
| Photo 41: View of water bucket, water distribution system, and fire suppression system. | | Photo 42: View wiring and dust suppression system. |
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| Photo 43: View of the electrical wiring proximity to the boarded horses. Additional ventilation by small fan. No window in stall. | | Photo 44: View of the east aisle washout stall. |


Photo 45: Restroom located in barn.


Photo 46: View of the sink and heater for the restroom.

Photo 47: View of the arena looking north. Dust suppression system located above the electrical lights.


Photo 48: View of the arena looking west.